

I claim:

1. A sheet shaped optical element package comprising:  
a base film, plural sheet shaped optical elements carried on said base film, and  
a cover film formed on said plural sheet shaped optical elements;  
wherein:  
said plural sheet shaped optical elements are arranged on said base film in a row;  
each of said sheet shaped optical elements have an optical direction; and  
the above surface of said plural sheet shaped optical elements are covered by  
said cover film in a manner such that said cover film covers said sheet shaped optical  
elements having a blank part on it.
  
2. A sheet shaped optical element package according to claim 1, wherein:  
each of said sheet shaped optical elements has plural prisms having a sectional  
view which is a triangle;  
the ridge corresponding to an apex of the triangle of each prism  
faces an opposite side to a sheet shaped substrate;  
the surface of the prism against the ridge is combined with the sheet shaped  
substrate as one body;  
the ridge of each prism runs parallel with each other;  
each sheet shaped optical element is supported by being carried by the base film;  
and  
the surface of each sheet shaped optical element on which said plural prisms are  
formed is positioned on the opposite(far) side to said base film.
  
3. A sheet shaped optical element package comprising:  
a base film, and plural sheet shaped optical elements carried on said base film;  
wherein:  
said plural sheet shaped optical elements are arranged on said base film in a row;

each of said sheet shaped optical elements has plural prisms having a sectional view which is a triangle;

the ridge corresponding to an apex of the triangle of each prism faces an opposite side to a sheet shaped substrate;

the surface of the prism against the ridge is combined with the sheet shaped substrate as one body;

the ridge of each prism runs parallel with each other;

each sheet shaped optical element is supported by being carried by the base film;

and

the surface of each sheet shaped optical element on which said plural prisms are formed is positioned on the opposite side to said base film.

4. A sheet shaped optical element package comprising:

a base film, plural sheet shaped optical elements carried on said base film, and a cover film formed on said plural sheet shaped optical elements;

wherein:

said plural sheet shaped optical elements are arranged on said base film in a row;

said base film being tape shaped carries said sheet shaped optical elements having a blank part on it;

each of said sheet shaped optical elements have an optical direction;

the above surface of said plural sheet shaped optical elements are covered by said cover film in a manner such that said cover film covers said sheet shaped optical elements having a blank part on it; and

said cover film and said base film hold said plural sheet shaped optical elements between them.

5. A sheet shaped optical element package according to claim 4, wherein:

each of said sheet shaped optical elements has plural prisms having a sectional view which is a triangle;

the ridge corresponding to an apex of the triangle of each prism faces an opposite side to a sheet shaped substrate;

the surface of the prism against the ridge is combined with the sheet shaped substrate as one body;

the ridge of each prism runs parallel with each other;

each sheet shaped optical element is supported by being carried by said base film; and

the surface of each sheet shaped optical element on which said plural prisms are formed is positioned on the opposite(far) side to said base film.

6. A sheet shaped optical element package according to claim 4 , wherein:

said base film is equal in size to said cover film; and

said base film and said cover film hold said plural sheet shaped optical elements between them in a sandwich structure.

7. A sheet shaped optical element package comprising:

a base film, plural sheet shaped optical elements carried on said base film, and a cover film supplied on said plural sheet shaped optical elements; and

an upper roller to roll up said cover film and a lower roller to role up said cover film;

wherein:

said plural sheet shaped optical elements are arranged on said base film in a row;

said base film and said cover film hold said sheet shaped optical elements between them; and

by rolling up by said upper and lower rollers, said sheet shaped optical elements can be picked out.

8. A sheet shaped optical element package according to claim 7, wherein:

the above surface of said plural sheet shaped optical elements in a row are

covered by said cover film in a manner such that said cover film covers the said sheet shaped optical elements having a blank part on it; and

    said cover film and said base film hold said plural sheet shaped optical elements between them.

9.     A sheet shaped optical element package according to claim 7 , wherein:

    said base film is equal in size to said cover film; and

    said base film and said cover film hold said plural sheet shaped optical elements between them in a sandwich structure.

10.    A sheet shaped optical element package according to claim 7, wherein each of said sheet shaped optical elements has an optical direction.

11.    A sheet shaped optical element package according to claim 7, wherein:

    each of said sheet shaped optical elements has plural prisms having a sectional view which is a triangle;

    the ridge corresponding to an apex of the triangle of each prism faces an opposite side to a sheet shaped substrate;

    the surface of the prism against the ridge is combined with the sheet shaped substrate as one body;

    the ridge of each prism runs parallel with each other;

    each sheet shaped optical element is supported by being carried by the base film;

and

    the surface of each sheet shaped optical element on which said plural prisms are formed is positioned on the opposite side to said base film.

12.    A sheet shaped optical element package according to claim 7, wherein:

    said structure in which said plural sheet shaped optical elements are arranged on said base film in a row, and said base film and said cover film which hold said sheet

shaped optical elements between them, is rolled up to form reel shape, or said structure is folded to form a Z shape in a unit of each sheet shaped optical element.

13. A method for use of sheet shaped optical elements by using a sheet shaped optical element package, the package comprising a base film, plural sheet shaped optical elements carried on the base film, and a cover film formed on the plural sheet shaped optical elements, and the base film and the cover film hold the sheet shaped optical elements between them, said method comprising:

rolling up the cover film by an upper roller, rolling up the base film by a lower roller, and through these processes picking up the sheet shaped optical elements to deliver them to the next process.

14. A method for use of sheet shaped optical elements according to claim 13, wherein:

the above surface of the plural sheet shaped optical elements in a row are covered by the cover film in a manner such that the cover film covers the sheet shaped optical elements having a blank part on it; and

the cover film and the base film hold the plural sheet shaped optical elements between them.

15. A method for use of sheet shaped optical elements according to claim 13, wherein:

the base film is equal in size to the cover film; and  
and the base film and the cover film hold the plural sheet shaped optical elements between them in a sandwich structure.

16. A method for use of sheet shaped optical elements according to claim 13, wherein:

each of the sheet shaped optical elements have an optical direction.

17. A method for use of sheet shaped optical elements according to claim 13, wherein:

each of the sheet shaped optical elements has plural prisms having a sectional view which is a triangle;

the ridge corresponding to an apex of the triangle of each prism faces the opposite side to a sheet shaped substrate;

the surface of the prism against the ridge is combined with the sheet shaped substrate as one body;

the ridge of each prism runs parallel with each other;

each sheet shaped optical element is supported by being carried by the base film;

and

the surface of each sheet shaped optical element on which the plural prisms are formed is positioned on the opposite side to the base film.

18. A method for use of sheet shaped optical elements according to claim 13, wherein:

the structure in which the plural sheet shaped optical elements are arranged on the base film in a row, and the base film and the cover film hold the sheet shaped optical elements between them, is rolled up to form a reel shape, or the structure is folded to form a Z shape in a unit of each sheet shaped optical element.

19. A method of manufacturing a sheet shaped optical element package to use for producing a sheet shaped optical elements assembly comprising at least a structure in which a first sheet shaped optical element and a second sheet shaped optical element, whose optical direction makes a right angle with an optical direction of the first sheet shaped optical element are piled in this order, said method comprising:

conveying or stocking the first sheet shaped optical element and the second sheet shaped optical element in a condition such that both optical directions are the same;

turning the first sheet shaped optical element 90° and placing it on the

base film; and

placing the second sheet shaped optical element on the base film without changing its direction;

or;

placing the first sheet shaped optical element on the base film without changing its direction; and

turning the second sheet shaped optical element 90° and placing it on the base film;

wherein:

through said processes, the first sheet shaped optical element and the second sheet shaped optical element are placed on the base film in this order in such a manner that the second sheet shaped optical element has an optical direction which makes a right angle with an optical direction of the first sheet shaped optical element;

the base film on which the first sheet shaped optical element and the second sheet shaped optical element are placed is covered by a cover film; and

a sheet shaped optical element package is obtained in which the first sheet shaped optical element and the second sheet shaped optical element, whose optical direction makes a right angle with the optical direction of the first sheet shaped optical element, are piled in this order between the base film and the cover film along the longitudinal direction of the films.

20. A method of manufacturing a sheet shaped optical element package according to claim 19, wherein:

the first sheet shaped optical element and the second sheet shaped optical element both have plural prisms having a sectional view which is a triangle, the ridge corresponding to an apex of the triangle of each prism faces the opposite side to a sheet shaped substrate, the surface of the prism against the ridge is combined with the sheet shaped substrate as one body, and the ridge of each prism runs parallel with each other; and

the first sheet shaped optical element and the second sheet shaped optical element are conveyed or stocked in a condition such that the directions of the ridges of the prisms are in the same.

21. A method of manufacturing a sheet shaped optical element package according to claim 20, wherein:

the other element(s) necessary to be constructed into the sheet shaped optical elements assembly is (are) placed in a position next to the second sheet shaped optical element on the base film in the order corresponding to the pile order; and

the sheet shaped optical element package is obtained in which the first sheet shaped optical element, the second sheet shaped optical element whose optical direction makes a right angle with the optical direction of the first sheet shaped optical element, and the other necessary element(s) are piled in this order between the base film and the cover film.

22. A method of manufacturing a sheet shaped optical element package according to claim 20, wherein:

at least one of the diffusion sheet, light guide, and reflector sheet is placed in a position next to the second sheet shaped optical element on the base film; and

the sheet shaped optical element package is obtained in which the first sheet shaped optical element, the second sheet shaped optical element whose optical direction makes a right angle with the optical direction of the first sheet shaped optical element, and at least one of the diffusion sheet, light guide, and reflector sheet are piled in this order between the base film and the cover film.

23. A device for manufacturing a sheet shaped optical element package to use for producing a sheet shaped optical elements assembly comprising at least a structure in which a first sheet shaped optical element, and a second sheet shaped optical element, whose optical direction makes a right angle with the optical direction of the first sheet

shaped optical element, are piled in this order, said device comprises:

plural means for picking up and placing the sheet shaped optical elements; each of said plural means is constructed in such a manner that it can turn the sheet shaped optical elements around a desired angle after picking up and placing them on the base film;

the first sheet shaped optical element and the second sheet shaped optical element are picked up in a condition such that both optical directions are the same; either the first sheet shaped optical element or the second sheet shaped optical element is picked up and turned by said plural means around 90° and is placed on the base film; and

through the processes, said device places the first sheet shaped optical element and the second sheet shaped optical element on the base film in this order along the longitudinal direction of the film.

24. A device for manufacturing a sheet shaped optical element package according to claim 23, wherein:

the first sheet shaped optical element and the second sheet shaped optical element both have plural prisms having a sectional view which is a triangle, a ridge corresponding to an apex of the triangle of each prism faces the opposite side to a sheet shaped substrate, a surface of the prism against the ridge is combined with a sheet shaped substrate as one body, and the ridge of each prism runs parallel with each other; and

the first sheet shaped optical element and the second sheet shaped optical element are placed on the base film in a condition such that the directions of the ridges of the prisms of the second sheet shaped optical element make a right angle with the ridges of the prisms of the first sheet shaped optical element.

25. A method of manufacturing a sheet shaped optical element package, said method comprising:

on a predetermined position on a film or on a sheet shaped tray, a first sheet

shaped optical element and a second sheet shaped optical element, whose optical direction makes a right angle with an optical direction of the first sheet shaped optical element, are piled in this order;

covering by the cover film; and

through the processes, obtaining the sheet shaped optical element package in which the first sheet shaped optical element and the second sheet shaped optical element, whose optical direction makes a right angle with the optical direction of the first sheet shaped optical element, are piled between the film or the sheet shaped tray and the cover film.

26. A method of manufacturing a sheet shaped optical element package according to claim 25, wherein:

the first sheet shaped optical element and the second sheet shaped optical element both have plural prisms whose sectional view is a triangle, a ridge corresponding to an apex of the triangle of each prism faces the opposite side to a sheet shaped substrate, a surface of the prism against the ridge is combined with the sheet shaped substrate as one body, and the ridge of each prism runs parallel with each other; and

the first sheet shaped optical element and the second sheet shaped optical element are piled between the tray and the cover film in a condition such that the directions of the ridges of the prisms of the second sheet shaped optical element make a right angle with the ridges of the prisms of the first sheet shaped optical element.

27. A device for manufacturing a sheet shaped optical element package to use for producing a sheet shaped optical elements assembly comprising at least a structure in which a first sheet shaped optical element, and a second sheet shaped optical element, whose optical direction makes right angle with an optical direction of the first sheet shaped optical element, are piled in this order, said device comprising:

plural means for picking up and placing the sheet shaped optical elements; each of the plural means is constructed in such a manner such that it can turn the

sheet shaped optical elements around a desired angle after picking up and placing them on a predetermined position on the base film or on the sheet shaped tray;

the first sheet shaped optical element and the second sheet shaped optical element are picked up in a condition such that both optical directions are in the same;

either the first sheet shaped optical element or the second sheet shaped optical element is picked up and turned by said plural means around 90° and is placed on the base film; and

the first sheet shaped optical element and the second sheet shaped optical element are piled in a condition such that a direction of the second sheet shaped optical element makes a right angle with an optical direction of the first sheet shaped optical element.

28. A device for manufacturing a sheet shaped optical element package according to claim 27, wherein:

the first sheet shaped optical element and the second sheet shaped optical element both have plural prisms having a sectional view which is a triangle, a ridge corresponding to an apex of the triangle of each prism faces an opposite side to a sheet shaped substrate, a surface of the prism against the ridge is combined with the sheet shaped substrate as one body, and the ridge of each prism runs parallel with each other; and

the first sheet shaped optical element and the second sheet shaped optical element are piled between the tray and the cover film in a condition such that the directions of the ridges of the prisms of the second sheet shaped optical element make a right angle with the ridges of the prisms of the first sheet shaped optical element.

29. A method of manufacturing a sheet shaped optical element package, said method comprising:

on a predetermined position of a base film, a first sheet shaped optical element and a second sheet shaped optical element, whose optical direction makes a right angle

with an optical direction of the first sheet shaped optical element, are piled in this order, order;

covering by the cover film; and

through the processes, obtaining the sheet shaped optical element package in which the first sheet shaped optical element and the second sheet shaped optical element, whose optical direction makes a right angle with the optical direction of the first sheet shaped optical element, are piled between the base film and the cover film.

30. A method of manufacturing a sheet shaped optical element package, said method comprising:

on a predetermined position of a base film, a first sheet shaped optical element and a second sheet shaped optical element are piled in this order;

each of the sheet shaped optical elements has plural prisms having a sectional view which is a triangle, a ridge corresponding to an apex of the triangle of each prism faces an opposite side to a sheet shaped substrate, a surface of the prism against the ridge is combined with the sheet shaped substrate as one body, and the ridge of each prism runs parallel with each other;

the first sheet shaped optical element and the second sheet shaped optical element are piled in a condition such that the directions of the ridges of the prisms of the second sheet shaped optical element make right angle with the ridges of the prisms of the first sheet shaped optical element;

covering by the cover film; and

through the processes, obtaining the sheet shaped optical element package in which the first sheet shaped optical element and the second sheet shaped optical element, are piled between the base film and the cover film.